CASE REPORTS

Massive Hematemesis Due to Acute Erosion of the Gastric Mucosa

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HEMORRHAGE from the gastro-intestinal tract, whether indicated by hematemesis or melena, has always been of interest to the clinician and often challenges his diagnostic ability. The known causes of such hemorrhage have been adequately classified,[3] but there is occurrence of bleeding from the alimentary tract which has thus far been unexplained.[9] Experience gained in treating such a patient recently has taught us that massive hemorrhage can result from acute transitory erosion of the gastric mucosa. This lesion has been described in the literature,[2] but it is our belief that it is not recognized by clinicians as frequently as it might be. Patients who have hematemesis are usually treated by conservative measures, and frequently x-ray studies of such patients, made after their symptoms have subsided, show no abnormality of the stomach. Since death can result from massive hematemesis, however, surgical intervention in certain instances may be life-saving. The following case report is illustrative:

The patient, a white female 40 years of age, was hospitalized after vomiting large amounts of blood during the preceding 48 hours. She complained also of weakness and sweating. Questioning revealed that the patient had been in excellent health, without symptoms, before the onset of this illness. On one occasion, nine years before, she had been hospitalized for three weeks because of hematemesis. At that time conservative medical therapy was followed by complete recovery. Repeated x-ray examinations made then showed no abnormality of the gastro-intestinal tract.

Examination showed the patient to be thin, acutely ill, obviously in shock. The pulse rate was 80 and the blood pressure 80 mm. of mercury systolic and 50 mm. diastolic. There was slight tenderness in the epigastrium but there were no other abnormal physical signs.

Shortly after admission, the patient had a large tarry stool. Despite conservative therapeutic measures which included morphine, parenteral administration of vitamin K, withholding of food and fluid by mouth, and elevation of the foot of the bed, the patient's blood pressure fell to 65 mm. systolic and 30 mm. diastolic. At this point, a transfusion of 500 cc. of citrated blood was given intravenously, followed by 1,000 cc. of 5 per cent dextrose. The patient responded well to this therapy and during the ensuing 24 hours the blood pressure varied between 100 and 120 mm. systolic with the diastolic pressure at 70 mm.

On the second hospital day the patient was given a Sippy diet supplemented by intravenous fluids. Her condition continued to improve until the fifth hospital day when again a large amount of blood was vomited and shortly thereafter a large tarry stool was passed. The signs of shock reappeared, the pulse rate rising to 100 and the systolic pressure declining to 80 mm. Emergency laparotomy was decided upon and, in preparation for this, the patient was given a transfusion of 1,500 cc. of citrated blood.

An upper midline incision was made. On preliminary careful inspection, the stomach, duodenum, small intestine, and large intestine appeared normal, except for evidence of gross blood in the lumen of the entire intestinal tract. Since it seemed imperative to discover the source of bleeding, an opening in the stomach was made near the pylorus; when the blood was seen to be coming from the fundus, this small opening was closed and a larger incision made in the fundus. A large blood clot was adherent to the mucosa of the greater curvature and extended to within 5 cm. of the esophageal orifice. When the clot was removed active arterial bleeding from the center of a small, 4 mm. mucosal erosion was observed. A small portion of the stomach wall, which included this lesion, was excised. During operation the patient received 1,000 cc. of citrated blood.

Recovery was uneventful. Before discharge from the hospital, laboratory studies showed negative results in a serologic test for syphilis, normal urinary findings, and rapid recovery from the anemia. Results of gastric analysis on two occasions (12th and 18th postoperative days) revealed normal secretions of free hydrochloric acid.

X-ray visualization of the stomach with a barium meal on the 15th postoperative day was considered normal. Pathological examination of the specimen removed from the stomach wall showed acute erosion of the gastric mucosa.

Three months later the patient was readmitted to the hospital for study. She was symptom free, in excellent general condition, and had gained 15 pounds. Twelve-hour gastric drainage was carried out; 200 cc. of gastric juice was obtained, having a total acidity of 10 degrees. The response to the injection of histamine was essentially the same as on previous admission. Routine blood and urine examinations gave data within normal limits.

Careful study of the patient's personality and environment did not disclose any factors which might be considered causative.

The patient has been observed since then at monthly intervals and has remained well.

COMMENT

The relative frequency of acute erosion of the gastric mucosa as a cause of massive hematemesis is not accurately known. Meyer and Steigmann[6] believed that such a lesion was probably responsible for a third to a half of the occurrences of hematemesis. Whether or not this lesion is a progenitor of the common peptic ulcer is a matter of controversy. It seems clear that x-ray studies of the stomachs of patients who have acute erosion are usually not diagnostic,[5, 6, 7] but some observers have recognized the lesion by means of the gastroscope.[4] Hematemesis resulting from acute erosion of the gastric mucosa was first described by Dieulafoy in 1899; in his patients it was a complication of pneumonia and pneumococcal peritonitis. Similar cases

have been reported by Sanford and co-workers.[8] That the acute gastric erosion need not necessarily be associated with pneumonia is shown by the case here reported and by others.[1, 2, 4, 7, 10] Although the great majority of patients who have gastric hemorrhage due to acute erosion respond favorably to conservative therapy, fatalities have been reported.[4, 10] It is also of interest that the patients who have this lesion do not seem to have the personality typical of the chronic peptic ulcer patient.[7]

It is our opinion that operative intervention, limited to such procedure as will accomplish arrest of the bleeding, is life-saving in properly selected cases, notably those in which the patients have repeated massive hemorrhage despite conservative therapy. In such instances, it will be necessary to open the stomach in order to demonstrate the acute erosion. Obviously such operative intervention will not prevent the occurrence of subsequent erosion. Proper treatment and/or prevention of this lesion must await some knowledge of its cause.

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Fracture of the Ribs by Muscular Action Other Than Coughing or Sneezing

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FRACTURE of the ribs is usually described as a result of direct violence, such as falls or blows.[7, 9] In such cases the rib is usually fractured at the site of trauma. In fractures caused by bending and compressions such as an anteroposterior squeeze, the ribs are usually fractured at the junction of their posterior and lateral curves.[1, 9] The injury may be bilateral and may occur in one or more ribs. Fracture of the ribs may be due to pathological and certain other general conditions predisposing to fractures, such as old age, insanity and general wasting diseases.[1] Fracture by muscular action is considered a stress and fatigue fracture similar to the march fractures found in service men undergoing unusual physical exercise.[1, 2] Rib fractures have been reported from simple muscular strains and violent sneezing.[3, 5] Coughing may be responsible especially in severe tracheitis, in pertussis, in pneumonia, in tuberculosis, and in whooping cough. The injury sometimes occurs from the muscular effort of lifting heavy loads, from the strains of parturition and even from the exercises of golf.[4] It may also occur while straining at stool or vomiting.

Cases attributed to sudden and undue muscular strain as in lifting heavy objects are very few in number. Kleiner,[4] in 1924, reviewing the literature, found 56 cases of ribs fractured by muscular action, two of which were in the first rib, while in the rest of the series the fracture was in the lower six ribs. In only 13 of these 56 cases was the fracture caused by violent or sudden muscular action other than coughing. Kleiner added the report of a case in which a man fractured the right third rib while unloading large flagstones. Alderson,[1] in 1944, reported 35 cases of stress fractures of the first rib following "unaccustomed and strenuous exertion." In 1947 the authors of this presentation reported a case of fracture of the first rib due to muscular pull.[8] In the following three cases fracture resulted from sudden muscular action.

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CASE 1.—A meat cutter, 52 years of age, slipped on a wet floor. He did not fall to the floor but, in breaking his fall, twisted his body and felt something snap in the right side of his chest. Roentgenograms taken on the day of the injury showed fracture of the right fifth rib anteriorly near the axillary region. The fracture healed.

CASE 2.—A bartender, 58 years of age, while lifting a heavy beer keg felt sudden sharp pain in the right side of the chest. Roentgenograms taken the following day showed fracture of the right eighth rib posterior to the angle. The patient was discharged clinically cured a month later.

CASE 3.—A carpenter, 52 years of age, while pulling hard with his left hand in hanging a door, felt something "click" in the left side of the chest. Roentgenograms five days later showed fracture of the anterior extremity of the left sixth rib with fragments in good position. The patient received treatment for one week and then did not return for further treatment.

The length of the first two and the last two ribs protects them, and because of this protection most fractures due to muscular action occur in the middle ribs, the fourth to the eighth. Fractures of this type rarely occur in children due to the elasticity of the ribs. The average age of individuals suffering fracture of the ribs is over 40 years. About 77 per cent of such occur in males because of exposure and occupations.[7] The fracture is usually of the linear type without displacement and healing takes place without complications. Oechsli[6] is of the opinion that the fractures are probably due to the opposing forces of the obliquus externus abdominis and the serratus anterior muscle.

SUMMARY

Fracture of the ribs due to muscular action as in coughing is of frequent occurrence.

Fracture of ribs due to muscular action other than coughing or sneezing is relatively less frequent.

Three cases are reported of fracture of ribs due to sudden muscular action as in lifting or straining.

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